

KENYA JUNIOR SCHOOL EDUCATION ASSESSMENT**2026****MATHEMATICS****Prediction 3****903 Time 2 hours**

Name

Assessment number

School

INSTRUCTIONS TO CANDIDATES

Answer all questions in Sections A and B.

Section A contains 20 multiple-choice questions. Choose one answer from A, B, C and D for each question. Record the letter in the answer sheet below.

Answer Section B in the spaces provided. Show all necessary working.

A non-programmable calculator and mathematical instruments may be used.

Use the calculator value of π unless otherwise stated.

Diagrams are not drawn to scale unless a question requires measurement.

Section	Maximum mark	Score
A	20	
B	80	
Total	100	

SECTION A ANSWER SHEET

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

SECTION A (20 marks)

Answer all questions. Each question carries 1 mark.

1. A learner sorts the numbers 13, 17, 25 and 39. Which pair consists of prime numbers only?

- A. 13 and 17
- B. 13 and 39
- C. 17 and 25
- D. 25 and 39

2. A music teacher has 96 red ribbons, 144 blue ribbons and 72 yellow ribbons. She divides all the ribbons into the greatest possible number of identical sets. How many sets does she make?

- A. 12
- B. 18
- C. 24
- D. 36

3. A lift is 18 m below ground level. It rises through 25 m. What is its new position relative to ground level?

- A. 43 m below
- B. 7 m below
- C. 43 m above
- D. 7 m above

4. A beekeeper has 12 litres of honey. She fills 25 jars, each holding $\frac{3}{10}$ litre. Which expression gives the honey remaining?

- A. $25 - 12 \times \frac{3}{10}$
- B. $12 - 25 \times \frac{3}{10}$
- C. $12 + 25 \times \frac{3}{10}$
- D. $(12 - 25) \times \frac{3}{10}$

Working Space

SECTION A (20 marks)

Answer all questions. Each question carries 1 mark.

5. A learner solves $5^x \div 5^2 = 125$. What is the value of x ?

- A. 5
- B. 3
- C. 1
- D. 7

6. There are 95 tickets in a box: a adult tickets, twice as many youth tickets and some child tickets. Which expression gives the number of child tickets?

- A. $95 - 2a$
- B. $95 + 3a$
- C. $95 - a$
- D. $95 - 3a$

7. A tank holds more than 24 litres but no more than 40 litres. Which inequality describes its water volume v ?

- A. $24 \leq v < 40$
- B. $24 < v \leq 40$
- C. $24 < v < 40$
- D. $24 \leq v \leq 40$

8. The matrix below records the numbers of two types of tool in three stores. What is its order?

$$\begin{bmatrix} 7 & 12 \\ 5 & 9 \\ 8 & 6 \end{bmatrix}$$

- A. 2×3
- B. 6×1
- C. 3×2
- D. 1×6

Working Space

SECTION A (20 marks)

Answer all questions. Each question carries 1 mark.

9. The tip of a clock hand 0.75 m long turns through 120° . What distance does the tip travel, correct to 2 decimal places?

- A. 0.79 m
- B. 1.57 m
- C. 2.36 m
- D. 4.71 m

10. Water is 10 cm deep in an open cylindrical container of internal radius 6 cm. What area of the container is in contact with water, correct to 2 decimal places?

- A. 113.10 cm^2
- B. 376.99 cm^2
- C. 603.19 cm^2
- D. 490.09 cm^2

11. A rectangular container has internal dimensions 16 cm by 12 cm by 25 cm. What is its capacity?

- A. 4.8 litres
- B. 0.48 litres
- C. 48 litres
- D. 480 litres

12. A temperature sensor records 310 K. Using $^\circ\text{C} = \text{K} - 273$, what is the temperature in degrees Celsius?

- A. -37°C
- B. 583°C
- C. 37°C
- D. -583°C

Working Space

SECTION A (20 marks)

Answer all questions. Each question carries 1 mark.

Amount Ksh	Send	Withdraw
1-1000	11	15
1001-2000	22	27
2001-5000	30	38

Working Space

13. Use the transaction charges table above. An account contains Ksh 6800. The owner sends Ksh 2400 and then withdraws Ksh 1600. What balance remains after the two transactions?

- A. Ksh 2743
- B. Ksh 2800
- C. Ksh 2773
- D. Ksh 2770

14. A board is estimated to be 760 mm long. Its actual length is 800 mm. What is the percentage error in the estimate?

- A. 5.26%
- B. 40%
- C. 95%
- D. 5%

15. A quadrilateral has four equal sides. Its diagonals are equal in length and bisect each other at right angles. What is the quadrilateral?

- A. Rectangle
- B. Square
- C. Kite
- D. Trapezium

16. A road is 180 m long. It is represented on a plan drawn to a scale of 1 : 2500. What is its length on the plan?

- A. 0.72 cm
- B. 72 cm
- C. 7.2 cm
- D. 720 cm

SECTION A (20 marks)

Answer all questions. Each question carries 1 mark.

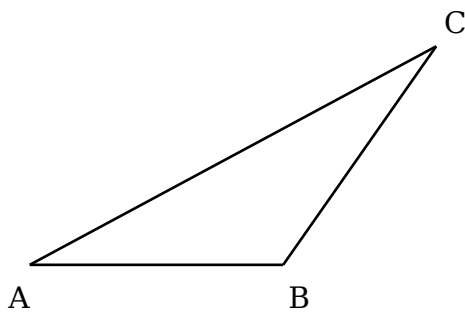
17. A straight line has equation $3y + 2x = 9$. What is the gradient of a line perpendicular to it?

- A. $-2/3$
- B. $2/3$
- C. $-3/2$
- D. $3/2$

18. A 25 cm design is reduced using scale factor $4/5$. What is its new length?

- A. 20 cm
- B. 31.25 cm
- C. 5 cm
- D. 100 cm

19. Use a protractor to measure angle ABC in the figure. What is its size?



- A. 55°
- B. 65°
- C. 115°
- D. 125°

20. Each letter of STATISTICS is written on a separate card. One card is selected at random. What is the probability of selecting S?

- A. $1/10$
- B. $1/3$
- C. $3/10$
- D. $3/7$

Working Space

SECTION B (80 marks)

Answer all questions in the spaces provided.

21. A museum plans to sell 25 000 tickets for an exhibition. By Thursday, 17 658 tickets have been sold.

(a) Calculate the number of tickets still to be sold. **(1 mark)**

(b) Write the number of tickets sold in words. **(1 mark)**

(c) Round the number of tickets sold to the nearest ten. **(1 mark)**

22. A cubical cold-storage compartment has an internal edge of 2.1 m.

(a) Calculate its internal volume. **(2 marks)**

(b) Cubical trays of edge 30 cm are stacked with their faces parallel to the compartment walls. Determine the number of trays that fit inside. **(2 marks)**

23. A craft centre uses silver-coloured, gold-coloured and copper-coloured beads in the ratio 2 : 5 : 7. A batch contains 98 copper-coloured beads.

(a) Determine the number of silver-coloured beads in the batch. **(3 marks)**

(b) How many more gold-coloured than silver-coloured beads are in the batch? **(2 marks)**

24. Nine identical pumps working 4 hours a day empty a reservoir in 12 days. Determine how many days eight pumps working 6 hours a day would take to empty the same reservoir. Assume a constant rate for each pump. **(4 marks)**

25. Express $0.4181818\dots$ as a fraction in its simplest form. Only the pair of digits 18 repeats. **(4 marks)**

26. A ferry charges different fares for adults and children. Two adult tickets and three child tickets cost Ksh 1260. Three adult tickets and two child tickets cost Ksh 1390. Determine the fare for one adult and one child. **(4 marks)**

27. Two repair teams, P and Q, receive screws, nuts and washers in two deliveries. The numbers received are shown below.

Delivery 1	Screws	Nuts	Washers
P	18	24	16
Q	22	15	19

Delivery 2	Screws	Nuts	Washers
P	14	17	23
Q	11	26	13

(a) Write a matrix for each delivery, taking teams P and Q as rows and the items in the order shown as columns. **(1 mark)**

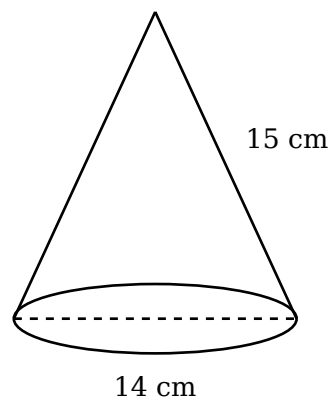
(b) Use matrix addition to determine the total numbers of each item received by each team. **(1 mark)**

28. A straight boundary on a coordinate plan passes through (8, 1) and has gradient $\frac{3}{4}$.

(a) Find the equation of the boundary line. **(2 marks)**

(b) Determine the coordinates of its intersection with the x-axis. **(2 marks)**

29. A solid cone has base diameter 14 cm and slant height 15 cm, as shown.

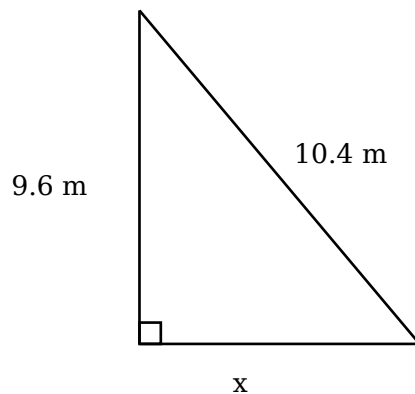


Not drawn to scale

Calculate the total surface area of the cone, including its base, correct to 2 decimal places. **(5 marks)**

30. Three identical spherical marbles, each of radius 2 cm, are completely submerged in water in a cylindrical jar of internal radius 5 cm. No water spills. Calculate the rise in water level, correct to 1 decimal place. **(4 marks)**

31. A ladder 10.4 m long rests against a vertical wall. Its top is 9.6 m above level ground, as shown.



(a) Calculate the distance x of the foot of the ladder from the wall. **(2 marks)**

(b) A material sample has mass 2.16 kg and volume 800 cm^3 . Determine its density in g/cm^3 . **(2 marks)**

32. A radio station at longitude 72°W broadcasts at 8.35 p.m. on Tuesday. Determine the local time and day at which the broadcast is heard at longitude 18°E . Ignore the signal travel time. **(4 marks)**

33. A workshop imports a cutting machine with a customs value of Ksh 960 000. For this transaction, the charges are calculated as follows:

- Import duty: 15% of the customs value.
- Excise duty: 8% of the customs value plus import duty.
- VAT: 16% of the customs value plus both duties.

(a) Calculate the import duty. **(2 marks)**

(b) Calculate the excise duty. **(2 marks)**

(c) Calculate the VAT. **(1 mark)**

34. A decorative panel is represented by parallelogram KLMN. $KL = 8.2$ cm, $KN = 4.6$ cm and angle $NKL = 30^\circ$. Use a ruler and a pair of compasses only. Leave all construction arcs visible.

(a) Construct parallelogram KLMN. **(3 marks)**

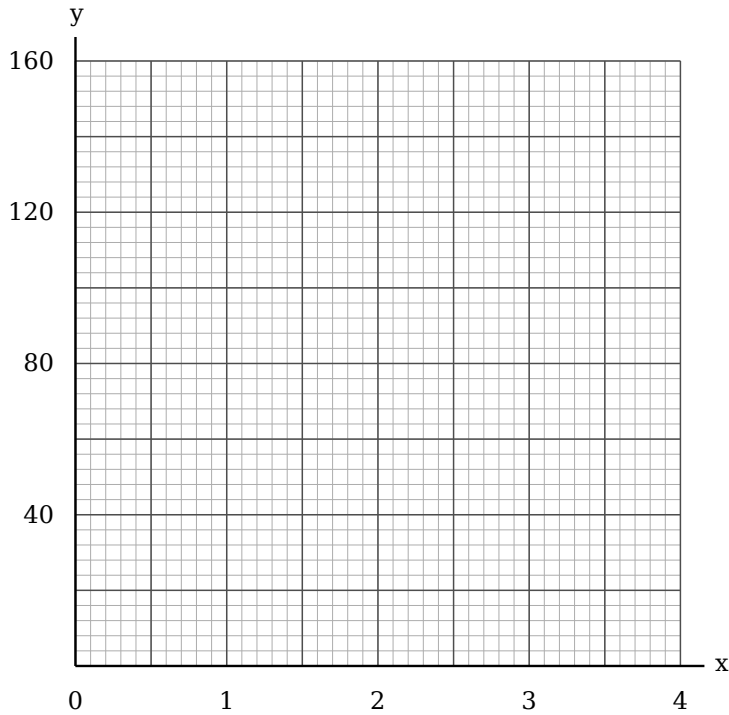
(b) Construct a perpendicular from N to meet KL at E. Measure NE to the nearest millimetre. **(2 marks)**

35. A bicycle-hire shop charges a fixed fee of Ksh 20 and Ksh 30 for each hour. The total charge y shillings for x hours is given by $y = 30x + 20$.

(a) Complete the table. **(1 mark)**

x hours	0	1	2	3	4
y shillings	20		80	110	

(b) On the grid, draw the graph of $y = 30x + 20$ for $0 \leq x \leq 4$. **(2 marks)**



36. From the top of a vertical observation tower, the angle of depression of a marker on level ground is 42° . The marker is 58 m from the foot of the tower. Calculate the height of the tower, correct to 1 decimal place. **(2 marks)**

37. A ranger walks 90 m from point A on a bearing of 310° to point B. From B, the ranger walks 120 m on a bearing of 040° to point C.

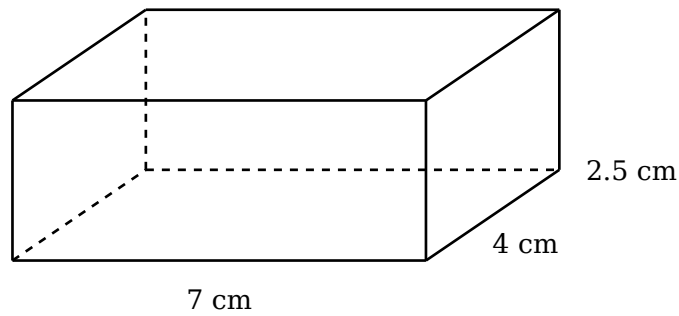
(a) Using a scale of 1 cm to represent 30 m, draw the relative positions of A, B and C. Show north lines. **(3 marks)**

(b) Use your drawing to determine:

(i) the direct distance from A to C; **(1 mark)**

(ii) the bearing of C from A. **(1 mark)**

38. A closed cuboidal container has the dimensions shown.



(a) Draw a net of the container and label its dimensions. **(2 marks)**

(b) Use the net to calculate the total surface area of the container. **(3 marks)**

39. The numbers of books borrowed by 20 members of a reading club in one term are shown below.

10, 8, 14, 6, 12, 10, 16, 8, 10, 14,
12, 10, 8, 16, 6, 14, 10, 12, 8, 10

(a) Prepare a frequency distribution table for the data. **(2 marks)**

(b) Determine:

(i) the mean number of books; **(2 marks)**

(ii) the median number of books. **(1 mark)**

40. A bag contains two counters labelled M and N. A box contains three cards labelled 2, 4 and 6. One counter and one card are selected independently at random.

(a) List all possible outcomes as ordered pairs, counter first. **(2 marks)**

(b) Calculate the probability of selecting N and a card with a number greater than 2. **(1 mark)**

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